question in electricity, and to organize a committee who should propose the subjects, examine the productions, and decide the prize. The following gentlemen have consented to act as members of the Committee:—J. Carpentier, President of the Société Internationale des Electriciens; Hippolyte Fontaine; E. Hospitalier, Professor in the School of Physics and Chemistry of the City of Paris; E. Mascart, Member of the Institute; A. Potier, Member of the Institute (Examiner); B. Abdank-Abakanowicz, Consulting Engineer (Secretary of the Committee). The Committee has decided that the prize should be given for an investigation on one of the following subjects:—(1) The heat developed by successive charges and discharges of condensers under different conditions of frequency, nature of dielectric, and quantity of charge. (2) It has been shown theoretically that when the two surfaces of a condenser are connected by a conducting body, the condenser becomes the source of alternating currents as soon as the resistance of the conducting body decreases below a certain limit. The formula that permits calculating the period of this oscillation has not yet been completely verified. This period of oscillation should be investigated experimentally under conditions such that the exact measure of resistance, capacity, and coefficients of self-induction may be possible, in order to arrive at a complete and precise verification of this formula. (3) When a condenser made with an imperfect insulating material has been charged and then left to itself, the charge is gradually dissipated. The time necessary for the charge to be reduced to a given fraction of its initial value depends only on the nature of the insulating material. It is proposed to investigate whether, as certain recent theories would seem to indicate, analogous phenomena do not present themselves in metallic conductors, and whether these can be shown experimentally. (4) It is proposed to arrange and systematize our present knowledge of the graphical solutions of electrical problems, and deduce from them some general methods as in graphical statics. The theses presented may be written in any one of the following languages:—English, French, German, Italian, Spanish, or Latin. They may be in manuscript or printed. Each thesis presented must be signed by a pseudonym and accompanied by a sealed envelope bearing the same pseudonym on the outside, and with the name and address of the author inside. The papers must be sent before September 15, 1893, to B. Abdank-Abakanowicz, Consulting Engineer, the Secretary of the Committee, at 7 Rue du Louvre, Paris, who will furnish any further information required.

The additions to the Zoological Society's Gardens during the past week include a Black-handed Spider Monkey (*Ateles geoffroyi*) from Nicaragua, presented by Mr. F. Vyner; a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. Gerald E. Bridge; a Black-shouldered Kite (*Elanus cœruleus*) captured at sea, presented by Mr. J. Watson; a Falcated Teal (*Querquedula falcata* ♂) from China, presented by Mr. A. C. Moule; an American Black Snake (*Coluber guttata*) from North America, deposited; two Mule Deer (*Cariacus macrotis* ♀ ♀) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

The Staff at the Lick Observatory.—We are sorry to notice the very considerable changes that are now taking place in the staff at the Lick Observatory. It seems only quite recently that Prof. Keeler tendered his resignation to take over the directorship of the Allegheny Observatory, but now we hear that Mr. Burnham has resigned, and that Prof. Henry Crew has done the same, the former having accepted a position of clerk in one of the courts of Chicago, and the latter having been elected to a Professorship of Physics in the North-Western University at Evanstown, Ill. With the loss of these men the observatory will be crippled for some time; for, although very good men will be found to take their places, a thorough acquaintance with the instruments can be obtained only by constant and frequent practice. Of the remainder of the staff Mr. Barnard and Mr. Schaeberle will be the only representatives of the older members. What the cause of these changes is we do not know, but there seem to be signs of a little friction somewhere, for what is the probability that three men should sever their connection with such an observatory in the space of a year—assuming, of course, normal conditions?

The Observations of Klinkerfues Reduced.—The second part of the *Astronomische Mittheilungen of the Royal Observatory* in Göttingen contains a complete reduction of Klinkerfues' observations which he made in the years 1858 to 1863. The work has been undertaken by the Director of the Göttingen Observatory, Prof. Wilhelm Schur, and has been printed at the expense of the König. Gesellschaft der Wissenschaften zu Göttingen. In the introduction Prof. Schur gives a complete account of the instruments used and the methods by which the observations were made. The zone included in this work is that which lies between + 15° and − 15° declination. The interest that is attached especially to these observations is caused by the fact that Klinkerfues did not wish to adopt the usual method for determining the declinations directly from the readings of the vertical circles, but he used that generally known as Gauss' method, in which a mirror and scale played an important part. The epoch to which all the places are referred is that of 1860, and a table is also added by which the yearly precession in right ascension and declination can be easily determined.

Photographs of Solar Phenomena.—To the August number of *Astronomy and Astro-Physics* are contributed some striking pictures that represent some of the latest advances made by the application of the photographic plate to the telescope. These photographs were taken by Prof. G. E. Hale, of the Kenwood Astro-Physical Observatory, with the new spectroheliograph, a description of which instrument will be found in the May number of the same Journal. The first photograph displays the spots and faculæ on the solar surface on May 21 last: a single glance at it will show us that we shall have to change very considerably our present ideas as to their extent, for instead of equalling the spots in area they exceed them so much as to place them relatively in entire insignificance. Another point that is at first noticed from the same photograph is the paucity of the faculæ at the limb with respect to the more central part of the disc, but this is, as we are told, only a fault in the process of reproduction, for in the original negatives the faculæ "are equally well shown on all parts of the solar surface." Another photograph of interest is that of the chromosphere and prominences taken on the same day; this was obtained by cutting off the light issuing from the solar disc by means of a metallic diaphragm; it resembles very strikingly a short-exposed photograph of the eclipsed sun, as the prominences on it as distinctly visible, while the presence of streamers and rifts is lacking. Since these photographs were taken, Prof. Hale has been able, by making two exposures on the same plate, to produce pictures each of which displays all the solar phenomena. For the first exposure he employed the metallic diaphragm, allowing the slits which move across it to travel with the velocity required for the prominences; for the second exposure the diaphragm was removed, and the rate of movement of the slits was this time very much increased.

A Meteorite.—In the *American Journal of Science* for August, Mr. H. L. Preston gives an account of the finding of a meteorite in Kenton County, eight miles south of Independence. In the year 1889 during the cleaning out of a spring, something very hard was struck which from the sound was thought to be metal. It was entangled among the roots of an ash tree three or four feet down in the ground, and was not removed from the spot until August 1890, when it was placed in a shed, and more recently bought for the Ward collection of meteorites. The measurements along its greatest diameters were 21 × 14 × 8 inches, and it weighed 359½ pounds. Its surface was covered with numerous but mostly shallow pittings, but was entirely free from crust. An analysis showed that it contained iron to the amount of 91·59 per cent., nickel 7·65, cobalt 0·84, carbon 0·12, with traces of copper and sulphur.

Mounting of Objectives.—A novel but very useful way of mounting objectives is that adopted by Prof. Hale, who has

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added another object glass to his equatorial. What he has done has been to employ a twin cell in which the glasses have been placed; the whole is then hung on an axis fixed rigidly to the side of the telescope tube so that by a simple rotation each glass, whether for photographic or for visual purposes, can be brought to the centre of the front of the tube. In order to make use of that objective which is not temporarily required for the main instrument, a tail-piece near the eye-end is also mounted, thus completing another telescope, only without a tube. One great disadvantage of this arrangement would be the difficulty of centring the lenses after each change, but this is not so as we are informed, no difficulty at all being experienced. In *Astronomy and Astro-Physics* for August, there is shown a picture of Mars emerging from occultation on July 11, taken without the tube. In the original photograph, which is about $\frac{1}{32}$ inch in diameter, the polar caps on the planet are clearly shown together with some of the other markings on the surface.

JUPITER.—During the next two months the planet Jupiter will be in a very good position for observation. This year he is as much as 5° to 8° north of the equator, being situated now in the constellation of Pisces, just north of the two stars μ and ν. The next opposition occurs on the 12th October.

NOVA AURIGÆ.—In a communication to the *Daily Graphic*, the Rev. A. Freeman gives the results of some observations of the revived new star in Auriga, made by him on Sunday, August 28. Adopting Mr. Stone's values for the magnitudes of the neighbouring stars, the nova would appear to have then been a trifle brighter than mag. 10·3, but decidedly fainter than 9·7. By comparison with the zone star +30° 924, the nova was rated at mag. 10·1. As Mr. Espin estimated it to be 9·2 on August 21, it is probable that the star is again waning.

From the Astrophysical Laboratory at South Kensington we have received the following:—There was no opportunity of observing the nova here until 1.30 a.m. on Thursday, September 1, and it was then too dim to be readily seen with the 10-inch refractor. A photograph of the region was taken with the $3\frac{1}{4}$-inch portrait lens, the exposure being thirty minutes, but this failed to show the nova, although clearly showing stars of the 10th magnitude.

COMET SWIFT, MARCH 6, 1892.—The following is a continuation of the ephemeris for Comet Swift, which we take from *The Edinburgh Circular*, No. 29:—

1892.	R.A. h. m. s.	Decl. ° ′	log. Δ.	log. *r*.	Br.
Sept. 8	0 32 27	+51 56·5			
9	31 8	51 48·8			
10	29 49	51 40·7	0·2751	0·4085	0·073
11	28 30	51 32·1			
12	27 10	51 23·2			
13	25 50	51 13·9			
14	24 30	51 4·1	0·2788	0·4164	0·069
15	23 11	50 54·0			

Brightness at time of discovery is the unit of Br.

The Edinburgh Circular, No. 30, announces the discovery of a comet by Mr. Brooks, at Geneva, U.S., at midnight on the 29th ult. The comet was then in R.A. 6h. 20min. and declination 31° 48′ north, its daily motion being +1min. 44sec. and 2′ south. The same comet has also been observed at Kiel on the 31st inst. at 12h. 32·2min.; its place then was found to be R.A. 6h. 5min. 59·1sec. North declination 31° 42′ 27″. Whether this comet is a new one or not cannot of course be said yet for certain, but it is neither Brooks' 1886 IV. nor Tempel 1867 II. if we can depend on the two search ephemerises we have at hand, for their declinations in both instances should be at this time over 30° south.

GEOGRAPHICAL NOTES.

MONTENEGRO, though one of the smallest, is certainly one of the least known countries in Europe. Dr. K. Hassert, who has already made important journeys in the less known parts of the Balkan peninsula, is this summer travelling through Montenegro, and describes the scenery as in many places of very great beauty. The frontier river Cijevna flows through a steep-sided gorge, the height of the precipices bordering which he estimates as over 3000 feet, while in its appearance it rivals the cañons of the Colorado. The traveller in this part of the country runs considerable risks from the predatory Albanian tribes.

THE *Times* publishes a telegram from Captain MacDonald of the Mombasa-Victoria-Nyanza Survey, announcing that the Survey had found a good route for a railway to Sio Bay on the Nyanza, and had returned to Kikuyu on August 8. The Survey work has been carried on rapidly, and, which is more important, without any fighting.

RAILWAYS in tropical Africa may ultimately derive more revenue from native passengers than might be anticipated. The railway from St. Paul de Loando is being pushed forward to Ambaca, and now nearly reaches Casengo, where there are flourishing coffee plantations under Portuguese management. Until this point is reached the revenue from goods cannot be large, but the natives having speedily got over their distrust of the innovation, now travel freely by rail in large numbers.

PROF. POUCHET has this summer succeeded in visiting Jan Mayen Island and Spitzbergen in the French gun-boat *La Manche*. Jan Mayen, on which a landing had not been made for ten years, was visited on July 27, and the vessel proceeded to Spitzbergen, where a fortnight was spent. The west coast was followed up to 78° N., and some excursions made on foot into the interior. Glacier phenomena were studied, and collections of native fauna and of fossils made. The sea was found to be entirely free from ice.

NEWS has recently been received in Copenhagen of the safety and success of the East Greenland Expedition, which left Denmark in June 1891 under Lieutenant Ryder. The expedition passed the winter on the Greenland coast in Scoresby's Land at a point in 70° 27′ N. Important scientific results have been obtained, but the expedition is not yet over, Lieutenant Ryder intending, after a short visit to Iceland, to make an attempt to trace out the hitherto unvisited coast-line between 70° N. and the Arctic circle.

THE first chart on which the American continent appears is being reproduced in facsimile for the approaching Columbus Exhibition in Madrid. The following details are given in a Reuter telegram from Madrid. The work, which is now approaching completion, is being done by Señor Canovas Vallejo, a nephew of the Spanish Premier, and by Prof. Traynor. The original chart, which was traced in the year 1500 by the famous navigator and cartographer Juan de la Cosa, who acted as pilot to Columbus in more than one of his voyages across the Atlantic, has been since carefully preserved in the Naval Museum in Madrid. The chart presents some most interesting features, displaying, as it does, the extent of the knowledge of the best-informed geographers of the day. On it are depicted the West Indies and a small portion of South America—namely, the north-eastern section lying between the River Amazon and Panama. To this land the general name of Tierra Firme is given, to mark the contrast between the continent and the Antilles. Here and there are traces of modern names, such as Venezuela, Maracaibo, and Brazil. The chart even comprises some particulars of the discoveries made in Northern America by Sebastian Cabot in 1497, and such titles as these:—"Sea discovered by the English," "English Cape," "Lizard," and "St. George." La Cosa has also clearly depicted Cuba as an island, whereas Columbus died in the belief that it was a continent, and it was not until eight years later that the correctness of La Cosa's chart was in this respect finally established.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

ROCHESTER MEETING.

THE forty-first annual meeting of the American Association for the Advancement of Science was held at Rochester, New York, August 17–23, Prof. Joseph Le Conte, of California, the well-known geologist, presiding.

Rochester is one of the most beautiful of American cities, being laid out quite on the *rus in urbe* principle, so that each residence is generally surrounded by grounds, instead of being built in a solid block. It is pre-eminently a city of freeholders, as appears by the fact that a recent census showed more landowners than voters in the city. It is moreover situated in the beautiful and picturesque region of western New York, within a very short distance from numerous glacial lakes, as well as the

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